



Podded propulsors



Mermaid™ pods have steadily evolved over the last decade. The range offers five frame sizes from 1,850mm to 2,770mm motor stator diameter, with five powers from 5 to 27MW. Advances in design have increased the power density, which means for a given power the pod diameter can be reduced allowing a more streamlined form for the underwater unit for improved efficiency. Both induction and synchronous motors are offered. For ice-going vessels induction motors are normally specified due to their good torque characteristics at low speed. Rolls-Royce and GE Energy Conversion combine their resources and expertise on the electrical, mechanical and hydrodynamic elements of the design. The application of Mermaid pods is not restricted to passenger vessels or ice going ships. Underwater mountable units are available for rigs, and Mermaid pods are also powering naval vessels.



Podded propulsors

Mermaid™ pods offer flexibility in vessel design and machinery layout. They combine the functions of a propulsion motor, main propeller, rudder and stern thruster in a single unit. The integrated electric motor drives the shaft, saving space on board and eliminates the need for a gearbox.

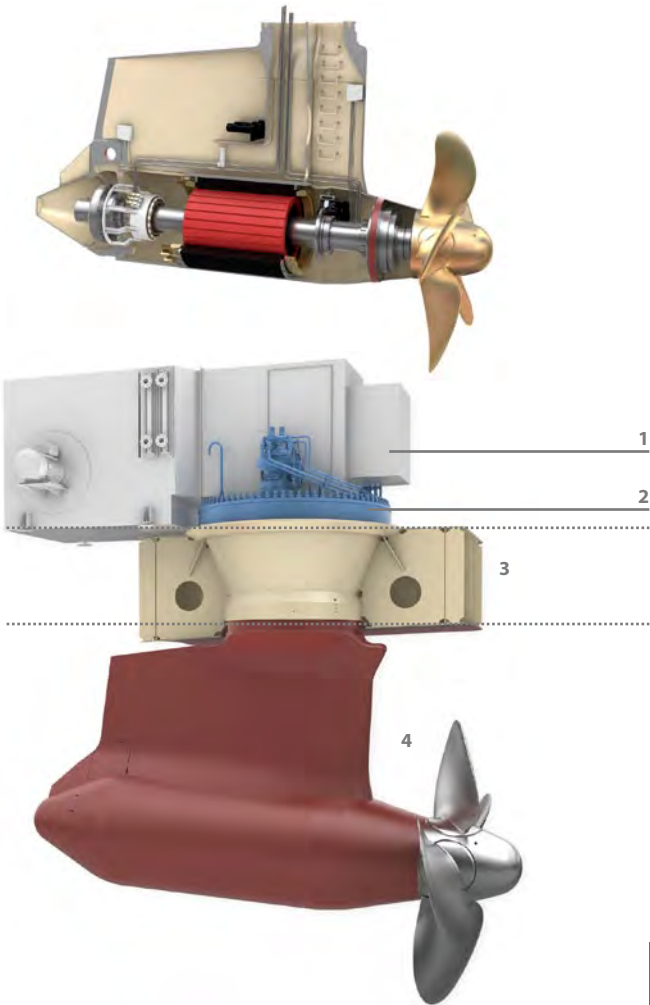
The propeller is a fixed pitch high skew design for low noise and vibration. It can be supplied as a monobloc or with separately bolted blades, that can be simply changed in the event of damage. All seals are environmentally friendly, with no oil release in the event of a failure.

Key features:

- Powers from 5 to 27MW
- Synchronous motor with brushless excitation, or induction motor
- Excellent manoeuvring capability
- Flexible machinery arrangement with simpler machinery installation
- High efficiency with low noise and vibration
- Environmentally friendly sealing arrangement
- Remote controlled brake and locking unit
- Pulling azimuth unit for maximum propulsive efficiency.

Technical data

Standard Mermaid sizes	Power Synchronous motor (MW)	Power Induction motor (MW)	Shaft speed (rpm)	Weight (t)	Prop. dia. (m)	Speed (knots)
185	6 - 11	6 - 10.5	110 - 210	70 - 115	3.6 - 5.4	Up to 24
210	8 - 16	8 - 13.5	105 - 195	110 - 155	4.1 - 5.9	
232	11 - 20	9 - 17	100 - 180	145 - 190	4.5 - 6.4	
250	13 - 23	11 - 20	95 - 170	185 - 220	4.9 - 6.9	
277	15 - 27	13.5 - 23.5	90 - 160	230 - 270	5.4 - 8.0	



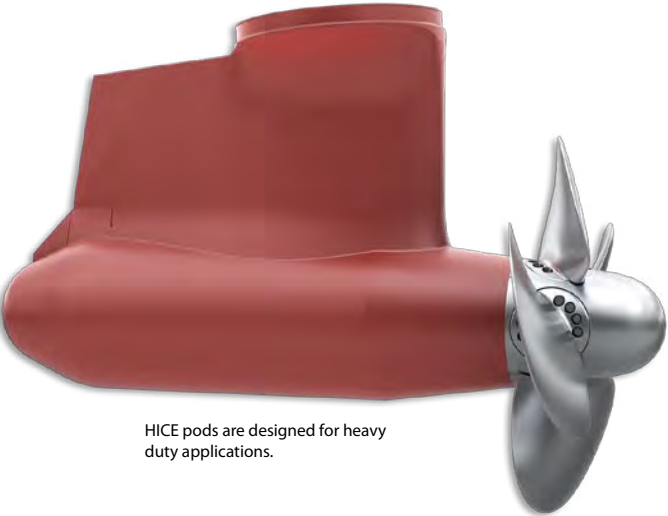
Main components

- 1. Cooling cubicle:** Mounted on the steering unit and contains the fans, coolers and air drying equipment.
- 2. Steering unit:** The steering machinery is mounted in the pod seat and contains the slewing bearing, steering gear wheel and steering motors. These can be either electric or hydraulic.
- 3. Pod seating:** Custom built for each hull. Is delivered fairly early to the yard and becomes an integral part of the hull.
- 4. Pod unit:** Rotates 360°, +/- 35° in transit. Equipped with slip rings and fluid distribution swivel inside steering unit.



Mermaid™ ICE and HICE

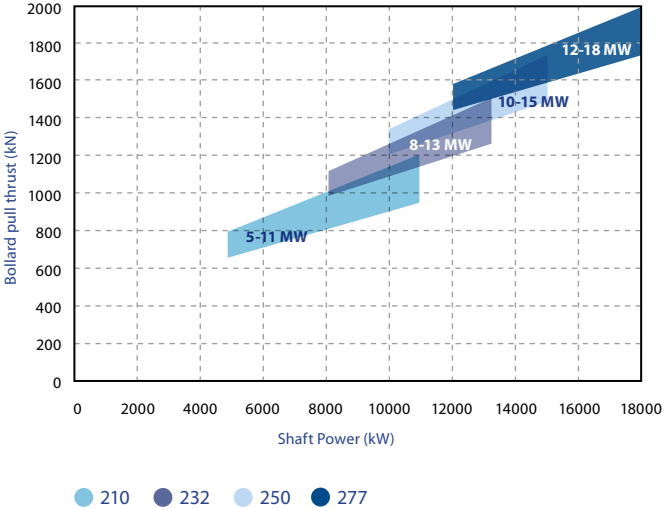
Mermaid ice-strengthened pods are specifically designed for all vessels that operate in the toughest arctic conditions. Mermaid ICE units are designed to IACS PC4 and provide excellent hydrodynamic performance for open sea voyages for fuel savings in a mixed operating profile. HICE pods (illustrated below) for heavy duty ice applications are designed for ice classes to IACS PC1. Both types are equipped with robust heavy duty induction PWM motors with high torque at low rpm suitable for tough ice milling conditions.



HICE pods are designed for heavy duty applications.

Key features:

- Power range 5 to 18MW
- Induction PWM motor
- High torque at low shaft speed for good ice milling capability
- Stator shrink fitted to pod housing for efficient cooling
- Stainless steel fixed pitch propeller with bolted blades for simple change out



Technical data

Pod size	Bollard pull (MW)	Shaft speed (rpm)	Weight (t)	Prop. dia (m)	Bollard pull thrust (kN)	Open water speed (knots)
210	5 - 11	105 - 155	70 - 115	3.7 - 5.0	600 - 1200	14 - 19
232	8 - 13	100 - 147	110 - 155	4.5 - 5.65	1000 - 1500	
250	10 - 15	95 - 140	145 - 190	4.9 - 6.0	1200 - 1650	
277	12 - 18	90 - 132	250 - 325	5.4 - 6.5	1300 - 2000	

All data subject to change without prior notice



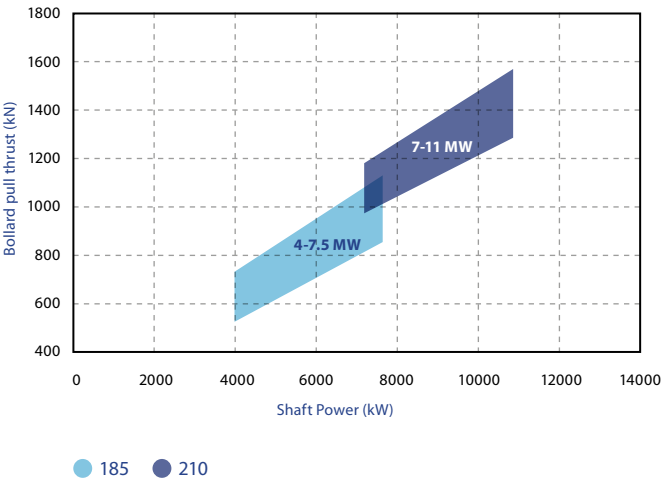
Mermaid™ PUSH

The Mermaid pushing pods are designed for low speed, high load and high bollard pull applications. Fitted with a hydrodynamically optimised nozzle for maximum efficiency, they enable offshore operators to utilise the full benefits of space saving electrical pod propulsion.



Key features:

- Power range 4 to 11MW
- Induction or Synchronous motor
- Excellent performance for applications requiring high thrust and reliability
- Underwater mountable option for most hull designs
- Choice of fixed pitch monobloc or bolted propeller



Technical data

Pod size	Bollard pull (MW)	Shaft speed (rpm)	Weight (t)	Prop. dia (m)	Bollard pull thrust (kN)	Speed (knots)
185	4 - 8	110 - 180	70 - 125	2.7 - 4.1	750 - 1150	Up to 16
210	7 - 11	105 - 150	110 - 170	3.6 - 4.8	1200 - 1550	

All data subject to change without prior notice